

Application No. 10/805,876  
Amendment dated January 27, 2008  
Response to Office action mailed July 27, 2008

Docket No.: 61842CIP(51035)

### **REMARKS**

Claims 1-12 are pending. Claims 1 and 2 are amended; claim 4 is cancelled.  
Each of the rejections is addressed below.

#### **Support for the Amendments**

Support for the amendment is found in the specification and claims as originally filed. For example, support for the amendment of claims 1 and 2, which now recite "hop beta acids" is found at page 4, second full paragraph; support for the amendment of claims 1 and 2, which now recite "emulsifier" is found at claim 4 as originally filed.

#### **Rejections under 35 U.S.C. § 112, first paragraph**

##### *Written Description*

Claims 1-12 are rejected as lacking an adequate written description. Claims 1 and 2, from which the remaining claims depend, are directed to methods of controlling spider mites or powdery mildew, respectively, by applying an emulsion containing an emulsifier, soap and at least 1.0% hop beta acids to a crop. The Examiner alleges that the application fails to provide an "explanation of what constitutes liquid soap and no examples as such, emulsifiers are seen as meeting this requirement (Office action mailed July 27, 2007, page 2, lines 14-16)." In support of the rejection, the Examiner cites U.S. Patent No. 5,372,817 (hereinafter "Locke"), column 7, lines 14-17, where Locke describes non-ionic and anionic surfactants, such as Ivory® liquid soap." For the reasons detailed below, Applicants respectfully disagree with the rejection.

In determining whether a patent application is in compliance with 35 U.S.C. § 112, first paragraph, the Examiner must consider whether "the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed." *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989). The written description requirement ensures that an inventor is in possession of the claimed subject matter at the time the application is filed. *In re Smith*, 481 F.2d 910, (CCPA 1973). The

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U.S. Patent and Trademark Office provides guidance to the Examiner regarding the evidence required to support a written description rejection.

If the examiner determines that the application does not comply with the written description requirement, the examiner has the initial burden, after a thorough reading and evaluation of the content of the application, of presenting evidence or reasons why a person skilled in the art would not recognize that the written description of the invention provides support for the claims (Revised Interim Written Description Guidelines Training Materials, page 4, first paragraph).

Clearly, the mere assertion that an application fails to comply with 35 U.S.C. 112, first paragraph, is not sufficient; rather, the Examiner must indicate what material is missing from the disclosure and must provide evidence or reasoning showing that this missing material is not within the knowledge of the skilled artisan. The Examiner has not met this burden.

Applicant's claims are directed to methods for controlling spider mites by applying an emulsion containing soap and beta acids to the crop, where the soap is in an amount sufficient to reduce film in the emulsion. The Examiner questions the adequacy of Applicants' disclosure because Applicants fail to explain the meaning of the term "soap" and fail to provide examples of "emulsifiers." Applicants respectfully disagree. At page 5, under the heading "Preparation of a 10% Emulsion of Beta Fraction (Beta Acid Oil) for Pest Control," Applicants describe the preparation of an aqueous emulsion of beta acids "the beta acid fraction was heated to 60° C, and added to a volume of 60°C water, to which an emulsifier, such as Nino FM Tri-Emulsifier, was added . . . The mixture was then emulsified in a high-shear mixer to produce a stable emulsion." Applicants teach that water can be added to this emulsion, and that the emulsion remained stable at all dilutions. At page 13, lines 1-4, Applicants describe applying the emulsion to crops. This application was problematic because the emulsion tended to clog the sprayers. To overcome the clogging problem, Applicants added soap to the emulsion, and found that the emulsion containing the soap could be applied to crops without clogging the sprayer (page 13, lines 5 and 6).

Furthermore, Applicants submit that one of ordinary skill in the art would appreciate the terms "soap" and "emulsifiers," as such terms are exemplified in examples

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in Applicants specification (see, e.g., page 5, lines 7-20, and page 13, lines 4-6), and because the meaning of such terms is well known, as evidenced in Exhibit B (submitted herewith), which provides a definition of "soap," and in Exhibit A (submitted with the Response to Office action, April 27, 2007), which provides a definition of an "emulsifier." The Condensed Chemical Dictionary defines "soap" as "[t]he water-soluble reaction product of a fatty acid ester and an alkali" that "lowers the surface tension water." The term "emulsifier" is defined as a "surface active agent." As such, Applicants submit that one of skill in the art would immediately recognize what is meant by the terms "soap" and "emulsifier".

In determining whether Applicant's specification complies with the written description requirement, the U.S. PTO cautions that a patent application should not be read in a vacuum, but should be read from the viewpoint of the skilled artisan (Interim Written Description Guidelines, page 49, lines 12-14). This point is made clear by the court in *In re Hayes Microcomputer Products Inc. Patent Litigation*, 982 F2d. 1527, 1534-35, 25 USPQ2d 1241, 1246 (Fed. Cir. 1992), where the court considered whether a specification's disclosure was adequate to support claims directed to a sophisticated process for controlling the operation of a modem. The court stated:

One skilled in the art would know how to program a microprocessor to perform the necessary steps desired in the specification. Thus, an inventor is not required to describe every detail of his invention. An applicant's disclosure obligation varies according to the art to which the invention pertains (*In re Hayes*, 982 F2d. 1527, 1534-35, 25 USPQ2d 1241, 1246 (Fed. Cir. 1992))

In *Hayes*, the court found that although the specification did not provide a description of a specific microprocessor, the specification was nevertheless adequate because "one skilled in the relevant art would understand what is intended and know how to carry it out." When Applicant's claims are analyzed using the standard applied by the court in *Hayes*, Applicants submit that the combination of knowledge of the skilled artisan combined with Applicants' specification having description and examples of soap and an emulsifier provides more than sufficient detail to practice the claimed invention.

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*Enablement*

The Examiner rejects claims 1-12 as lacking enablement based on the assertion that "any acid with a beta functional group" would be encompassed within the scope of Applicant's claims. Applicants respectfully disagree and traverse the rejection. Nevertheless, the rejection is rendered moot by the present amendment. The claims now recite "hop beta acids." Thus, Applicants request that the rejection be withdrawn.

Amendment of any claim herein is not to be construed as acquiescence to any of the rejections/objections set forth in the instant Office Action, and was done solely to expedite prosecution of the application. Applicants make these amendments without prejudice to pursuing the original subject matter of this application in a later filed application claiming benefit of the instant application, including without prejudice to any determination of equivalents of the claimed subject matter. Support for these amendments appears throughout the specification and claims as filed. No new matter is introduced by these amendments.

**Rejections under 35 U.S.C. § 112, second paragraph**

Claims 1, 2, 4, 6-9, 11 and 12 are rejected as allegedly indefinite. The Examiner asserts (i) that it is unclear whether the claims are directed to emulsions or to soaps; and (ii) that the phrase "at least about" is indefinite. Applicants respectfully disagree and traverse the rejection.

Nevertheless, claims 1 and 2, from which claims 4, 6-9, 11 and 12 depend, have been amended to clarify that the emulsions comprise hop beta acids and soap, and to delete the term "about." Accordingly, Applicants respectfully submit that the rejection of the claims under 35 U.S.C. § 112, second paragraph, should be withdrawn.

**Rejections under 35 U.S.C. § 103**

Claims 1 and 2, which are directed to methods of controlling spider mites or powdery mildew by applying an emulsion to an agricultural crop, are rejected under 35 U.S.C. 103(a) as allegedly obvious over Jones et al. (Pestic. Sci. 47:165-169, 1996; hereinafter "Jones") and Nutter (U.S. Patent No. 5,827,895; hereinafter "Nutter") in view

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of Souter et al., (U.S. Patent Publication No. 2003/0060379; hereinafter "Souter"), and Locke. For the reasons discussed below, Applicants respectfully disagree with the rejection.

*Jones*

The Examiner states that Jones shows that beta acids are antifungal and acaridal, but acknowledges that Jones fails to describe soap. To remedy the deficiencies of Jones, the Examiner cites Nutter.

*Nutter*

Nutter describes the use of beta acids as therapeutics (column 2, lines 42-43 and column 4, lines 3-34) and pharmaceutical compositions comprising beta acids that are suitable for oral administration (column 5, lines 65 and 66). Specifically, Nutter describes "Pharmaceutical compositions suitable for oral administration may be presented as discrete unit dosage forms such as hard or soft gelatin capsules . . . as a solution, a suspension or as an emulsion." The Examiner appears to be relying on Nutter for the description of beta acid emulsions.

**Nutter Is Nonanalogous Art**

To support a rejection under 35 U.S.C. § 103(a), a reference must be from an analogous art (M.P.E.P. 2141.01(a)). To determine whether a reference is from an analogous art, a two-fold analysis is required:

First, we decide if the reference is within the field of the inventor's endeavor. If it is not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved. *In re Wood*, 599 F.2d 1032, 1036 (C.C.P.A. 1979)

The Wood court first considers whether the reference is within the inventor's field and then considers whether the reference is pertinent to the problem the inventor is trying to solve.

Nutter is not within the field of Applicant's invention. Nutter relates to the therapeutic use of hop acids in pharmaceutical compositions. In contrast, Applicant's invention relates to the agricultural use of hop acids to control spider mites and powdery mildew in crops. The use of hop acids as pharmaceuticals is distinct and distinguishable

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from the field of agricultural pesticides. Thus, Nutter fails the first prong of the test set forth by the court in *Wood*.

Nutter is also not reasonably pertinent to the problem that Applicants were involved in solving. Applicants were interested in preventing hop beta acid emulsions from clogging crop sprayers when the emulsions were applied. Applicants state that "emulsions tend to clog sprayers (page 13, first full paragraph)." Surprisingly, Applicants discovered that including soap in the hop beta acid emulsion solved the clogging problem (page 13, second paragraph) and did not detrimentally affect the emulsion function. Applicants state "In subsequent field tests, it was discovered that solubility and film problems associated with beta acids could be improved considerably by adding liquid soap at 0.5% concentration (page 13, second paragraph)." The emulsions described by Nutter are present in pharmaceutical compositions for oral administration, and are not pertinent to the clogging film problems confronted by Applicants during the application of their emulsions to crops. Thus, Nutter fails the second prong of the test established by the court in *In re Wood*.

In sum, because Nutter is outside of the field of agricultural pesticides and is not reasonably pertinent to the agricultural application problem Applicants were involved in solving, Nutter is clearly nonanalogous art, and therefore cannot be used to support the obviousness rejection (M.P.E.P. 2141.01(a)). Accordingly, the rejection of the claims over Nutter should be withdrawn.

#### *Souter*

Souter, which was filed on November 6, 2002, is a continuation of PCT/US01/17243, which was filed on May 2001. Applicant's earliest priority date is May 17, 2000. Thus, Souter is not available as prior art.

#### *Locke*

Locke describes insecticidal compositions comprising neem oil and soap. Locke states that neem oil "can be applied as a soap . . . to repel insects and protect skin or wool from insect and fungal attack (column 4, line 67, to column 5, line 2)." Locke fails to mention hop beta acids. Therefore, Locke fails to teach or suggest applying an emulsion

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comprising 1.0% hop beta acids and soap to crops, where the soap is present in an amount sufficient to reduce film formation.

To establish a prima facie case of obviousness, the Examiner must first show that there is a suggestion or motivation to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations. M.P.E.P. 2143. In the absence of a showing that the references expressly or impliedly suggest all of the claim limitations the rejection under § 103 is improper and must be withdrawn. M.P.E.P. 2142.

One could not combine the neem oil soap described by Locke as useful in repelling insects from skin and wool with the solutions described by Jones and the pharmaceutical compositions of Nutter to arrive at Applicants' claimed method of applying an emulsion comprising hop beta acids and soap in an amount sufficient to reduce film formation. The cited references fail to teach or suggest all of the claim limitations. In addition, the skilled artisan would lack the motivation to combine these references. None of the cited references, alone or in any combination is sufficient to support the rejection of the claims under 35 U.S.C. § 103. Thus, withdrawal of the rejection is respectfully requested.

#### **Double-patenting rejection**

Claims 1 and 2 are rejected under the judicially created doctrine of double patenting over claims 3, 10, 14, 15, 17, and 18 of copending Application No. 11/008,781. Applicants respectfully traverse the rejection. Applicants will address the provisional obviousness-type double patenting rejection upon a finding that the claims are in condition for allowance, but for the double patenting rejection.

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**CONCLUSION**

In view of the above amendment, Applicants believe the pending application is in condition for allowance. If a telephone conversation with Applicants' agent would help expedite the prosecution of the above-identified application, the Examiner is urged to call the undersigned agent at (617) 517-5580.

No fee is believed due for consideration of this response, however, the Director is hereby authorized to charge any credits or deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105.

Dated: January 28, 2008

Respectfully submitted,

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## Exhibit B

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**smelting.** Heat treatment of an ore to separate the metallic portion with subsequent reduction. See roasting.

**Smiles rearrangement.** Intramolecular nucleophilic aromatic substitution in alkaline solution resulting in the migration of an aromatic system from one heteroatom to another.

**"Smite" [Du Pont].** TM for emulsifiable insecticide containing 12.5% methoxychlor and 12.5% malathion.

**Smith, Michael.** (1932-2000). A Canadian who won the Nobel prize for chemistry in 1993 for the development of site-specific mutagenesis. See Mullis, Kary Banks.

**smog.** A coined word denoting a persistent combination of smoke and fog occurring under appropriate meteorological conditions in large metropolitan or heavy industrial areas. The discomfort and danger of smog is increased by the action of sunlight on the combustion products in the air, especially sulfur dioxide, nitric oxide, and exhaust gases (photochemical smog). Strongly irritant and even toxic substances may be present, e.g., peroxybenzoyl nitrate. Fatalities have resulted from exposure to particularly severe photochemical smogs. See air pollution.

**smoke.** A colloidal or microscopic dispersion of a solid in gas, an aerosol. (1) Coal smoke: A suspension of carbon particles in hydrocarbon gases or in air, generated by combustion. The larger particles can be removed by electrostatic precipitation in the stack (Cottrell). Dark color, nauseating odor. See smog; air pollution; Cottrell. (2) Wood smoke: Light-colored particles of cellulose ash, pleasant aromatic odor. Smoke from special kinds of wood (e.g., hickory, maple) is used to cure ham, fish, etc., also to preserve crude rubber. (3) Chemical smoke: Generated by chemical means for military purposes (concealment, signaling, etc.). (4) Metallic smoke (fume): An emanation from heated metals or metallic ores, the particles being of specific geometric shapes. Such smoke is particularly damaging to vegetation in the neighborhood of zinc and tin smelters. (5) Cigarette smoke: There is conclusive evidence that the tars occurring in cigarette smoke can lead to lung cancer; chief factors are age of individual at initiation of smoking, extent of inhalation, and amount smoked per day. Polonium, a radioactive element, is known to occur in cigarette smoke; more than 100 compounds have been identified, including nicotine, cresol, carbon monoxide, pyridene, and benzopyrene, the latter a carcinogen. See cigarette tar.

**smokeless powder.** Nitrocellulose containing about 13.1% nitrogen, produced by blending materi-

al of somewhat lower (12.6%) and slightly higher (13.2%) nitrogen content, converting to a dough with alcohol-ether mixture, extruding, cutting, and drying to a hard, horny product. Small amounts of stabilizers (amines) and plasticizers are usually present, as well as various modifying agents (nitrotoluene; nitroglycerin salts).

**Hazard:** A low explosive, dangerous fire and explosion risk when exposed to flame or impact. **Use:** Sports ammunition, military purposes.

**smudge oil.** An oil burned in fruit orchards to prevent frost from injuring the trees. No. 3 fuel oil is typical of oils used.

**smut.** See fungus; rust (2).

**Sn.** Symbol for tin (from Latin stannum).

**snake venom.** There are two functional types (1) those that bring about blood coagulation either by direct action on fibrinogen or by converting prothrombin to thrombin; (2) neurotoxins that act on the central nervous system, e.g., by inactivation of acetylcholine. Rattlesnake and mocasin venom are examples of (1) and cobra venom of (2). The enzymes of snake venoms are thought to be the actual toxic principles. Solutions of cobra venom have found use in treatment of arthritis and cancer. The chemistry and pharmacological properties of these poisons are not well understood.

**Note:** A person bitten by a poisonous snake should be carried, *not walked*, to a hospital. *No alcohol* should be administered.

**sneezing gas.** See diphenylchlorarsine.

**SNG.** Abbreviation for synthetic or substitute natural gas.

**snow, artificial.** See artificial snow.

**"Snowmelt Instant Ice Melter" [Standard].** TM for calcium chloride. **Use:** Pellets for snow and ice melter. Flake for concrete accelerator and dust control.

**snow point.** Referring to a gas mixture, the temperature at which the vapor pressure of the sublimable component is equal to the actual partial pressure of that component in the gas mixture. This is the gaseous analog to dew point.

**SNTA.** Abbreviation for sodium nitrilotriacetate.

**soap.** (1) The water-soluble reaction product of a fatty acid ester and an alkali (usually sodium hydroxide), with glycerol as by-product. For the reaction, see saponification. A soap is actually a specific type of salt, the hydrogen of the fatty acid being replaced by a metal, which in common soaps is usually sodium. Soap lowers the surface tension of